

# UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.  
WD2-99-055

Total Pages in this Submission

## TO THE ASSISTANT COMMISSIONER FOR PATENTS

Box Patent Application  
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for invention entitled:

**SYSTEM AND METHOD FOR PRICING A TRAVEL PRODUCT BASED ON A TRAVELER'S SPECIFIED DEGREE OF FLEXIBILITY**

and invented by:

Jay S. WALKER, Daniel E. TEDESCO, James A. JORASCH, Keith BEMER, Kathleen VAN LUCHENE

If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: \_\_\_\_\_

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Enclosed are:

### Application Elements

1. ☐ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 28 pages and including the following:
  - a. ☒ Descriptive Title of the Invention
  - b. ☐ Cross References to Related Applications (if applicable)
  - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
  - d. ☐ Reference to Microfiche Appendix (if applicable)
  - e. ☒ Background of the Invention
  - f. ☒ Brief Summary of the Invention
  - g. ☒ Brief Description of the Drawings (if drawings filed)
  - h. ☒ Detailed Description
  - i. ☒ Claim(s) as Classified Below
  - j. ☒ Abstract of the Disclosure

**UTILITY PATENT APPLICATION TRANSMITTAL**  
**(Small Entity)**

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**Application Elements (Continued)**

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*  
a. ☒ Formal      b. ☐ Informal      Number of Sheets 11
4. ☒ Oath or Declaration  
a. ☒ Newly executed *(original or copy)*      ☐ Unexecuted  
b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*  
c. ☒ With Power of Attorney      ☐ Without Power of Attorney  
d. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application,  
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under  
Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby  
incorporated by reference therein.
6. ☐ Computer Program in Microfiche
7. ☐ Genetic Sequence Submission *(if applicable, all must be included)*  
a. ☐ Paper Copy  
b. ☐ Computer Readable Copy  
c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

**Accompanying Application Parts**

8. ☒ Assignment Papers *(cover sheet & documents)*
9. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)*
10. ☐ English Translation Document *(if applicable)*
11. ☒ Information Disclosure Statement/PTO-1449      ☒ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing  
☐ First Class      ☒ Express Mail *(Specify Label No.):* EL439900845US

**UTILITY PATENT APPLICATION TRANSMITTAL**  
**(Small Entity)**

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**Accompanying Application Parts (Continued)**

15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☒ Small Entity Statement(s) - Specify Number of Statements Submitted: 1
17. ☐ Additional Enclosures (please identify below):

**Fee Calculation and Transmittal**

**CLAIMS AS FILED**

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	55	- 20 =	35	x \$9.00	\$315.00
Indep. Claims	16	- 3 =	13	x \$39.00	\$507.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$380.00
OTHER FEE (specify purpose)					\$40.00
TOTAL FILING FEE					\$1,242.00

- ☐ A check in the amount of \_\_\_\_\_ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. **50-0271** as described below. A duplicate copy of this sheet is enclosed.
- ☒ Charge the amount of **\$1,242.00** as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Dated: July 22, 1999

  
Signature

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CC:

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY  
STATUS (37 CFR 1.9(f) AND 1.27 (c)) - SMALL BUSINESS CONCERN**

Docket No.  
WD2-99-055

Serial No.  
Not Assigned

Filing Date  
July 22, 1999

Patent No.  
Not Assigned

Issue Date  
Not Assigned

Applicant/ Jay S. WALKER et al.  
Patentee:

Invention: **SYSTEM AND METHOD FOR PRICING A TRAVEL PRODUCT BASED ON A TRAVELER'S  
DEGREE OF FLEXIBILITY**

I hereby declare that I am:

- ☒ the owner of the small business concern identified below:  
☐ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: **WALKER DIGITAL CORPORATION**

ADDRESS OF CONCERN: **One High Ridge Park, Stamford, Connecticut 06905-1326**

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the above identified invention described in:

- ☒ the specification filed herewith with title as listed above.  
☐ the application identified above.  
☐ the patent identified above.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed on the next page and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 CFR 1.9(c) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such person, concern or organization exists.  
☐ each such person, concern or organization is listed below.

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ Individual

☐ Small Business Concern

☐ Nonprofit Organization

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ Individual

☐ Small Business Concern

☐ Nonprofit Organization

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ Individual

☐ Small Business Concern

☐ Nonprofit Organization

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ Individual

☐ Small Business Concern

☐ Nonprofit Organization

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING:

Jay S. WALKER , President, Walker Digital Corporation

TITLE OF PERSON SIGNING

OTHER THAN OWNER:

124 Spectacle Lane, Ridgefield, Connecticut 06877

ADDRESS OF PERSON SIGNING:

SIGNATURE: \_\_\_\_\_



DATE: July 22, 1999

# SYSTEM AND METHOD FOR PRICING A TRAVEL PRODUCT BASED ON A TRAVELER'S SPECIFIED DEGREE OF FLEXIBILITY

## Field of the Invention

5           The present invention relates generally to a system for processing the sale of travel products, such as airline tickets, and, more particularly, to a system for selling travel products based on a traveler's specified degree of flexibility.

## Background of the Invention

10           Airline travelers can be generally classified into two broad groups, namely, business travelers and leisure travelers. Each group tends to exhibit different characteristics and expectations. Business travelers, for example, are generally willing to pay higher prices in exchange for a more flexible ticket. For example, business travelers generally purchase their tickets closer to the time of departure, and desire a  
15           fixed, convenient and reliable itinerary that can be changed without penalty. Moreover, business travelers are not especially price sensitive since business-related travel expenses are often reimbursed by a third party, such as an employer or a client.

          Leisure travelers, on the other hand, are generally willing to be more flexible with their itinerary and other expectations in exchange for a discounted fare.  
20           Since leisure travel is generally discretionary, many leisure travelers will often forego such leisure travel if a reasonable fare cannot be obtained.

          In view of the diverging characteristics, expectations, and financial wherewithal of business and leisure travelers, airlines distinctly bifurcate the customer base. In addition, the travel products provided by airlines and other travel-related  
25           sellers are generally separately targeted to these two extremes. In order for an airline to maximize profits, fares must be maximized for business travelers, while maintaining reasonable fares for leisure travelers. Airlines discount a limited number of advance purchase tickets for leisure travel, in an attempt to fly each aircraft as full as possible without allowing earlier-booking discount-fare leisure travelers to displace later-  
30           booking full-fare business travelers.

          Airlines generally deter business travelers from getting discounted fares by imposing restrictions on discounted airline tickets, such as requiring an advance

purchase, a Saturday night stay, or imposing a penalty for itinerary changes. Airlines have adopted a number of discount programs that are targeted for leisure travelers and generally offer a discount in exchange for demonstrated traveler flexibility. For example, many airlines attempt to fill empty seats with "standby" travelers. Standby travelers must typically present a standby voucher to an airline several hours before departure. The standby traveler is only permitted to board a flight if there is an available seat just before departure. Thus, standby travel can be inconvenient for the traveler because there is no guarantee that the traveler will be placed on a flight within a reasonable amount of time.

In addition, many airlines offer electronic mail notification services that inform registered travelers of available fare discounts on select routes a few days before the departure dates. The discounted tickets often include a number of general restrictions, such as a Saturday night stay and limited permissible itinerary changes. Furthermore, since the airlines generally withhold availability information for such discount programs until relatively close to the departure time, the programs do not encourage utilization by business travelers.

Another system for selling discounted airline tickets to leisure travelers, in exchange for a flexible traveler flight-time, is disclosed in United States Patent Application Serial Number 09/238,546, entitled "Method and Apparatus for the Sale of Airline-Specified Flight Tickets," assigned to the assignee of the present invention and hereinafter referred to as the "Anytime Airline System." In one embodiment, the Anytime Airline System sells an unspecified-time airline ticket to a traveler. A particular flight is selected by an airline from among the flights that fulfill the terms of the unspecified-time airline ticket. Again, the flight-time flexibilities discourage business travelers who may be unwilling to risk losing a full day at one or both ends of their trip. In addition to flight-time flexibility, travelers can obtain additional discounts for further specified flexibilities, such as the airline or airports for one or both ends of their trip.

While the above-described discount travel programs permit the sale of discounted travel products to leisure travelers, they are limited in ways, which, if overcome, could mutually benefit travelers and sellers of travel products alike. For

example, in each case, the traveler flexibilities required for participation in such discount programs are general in nature. The flexibilities are established by the airline and are generalized to meet the needs of the airline and permit mass marketing to broad groups of travelers. In addition, the above-described discount programs rely on the strict bifurcation of business and leisure travelers. Not all travelers, however, can always be classified into one of these two groups. Many travelers exhibit some characteristics of each group. For example, a business traveler may be sufficiently certain of his or her itinerary in advance of a desired departure date. Likewise, a business traveler may extend a primarily business trip over a weekend for personal reasons.

Thus, a need exists for a method and apparatus that more accurately establishes a price for a travel product based on the individual flexibilities of a traveler. A further need exists for a system that sells travel products based on a traveler's tendency toward business or leisure status. Yet another need exists for a method and apparatus that processes a traveler's specified degree of flexibility to determine appropriate restrictions and a corresponding discounted price.

### **Summary of the Invention**

Generally, a method and apparatus are disclosed for processing requests from a traveler for a travel product that is priced in accordance with a specified degree of flexibility. The disclosed system evaluates the traveler's specified degree of flexibility and determines an appropriate price and corresponding customized restrictions. According to one aspect of the invention, each travel product is evaluated in terms of one or more variable components, each having a range of possible options. For each applicable variable component, the traveler specifies his or her degree of flexibility, if any. The stated degree of flexibility is used to evaluate the traveler's tendency toward a business or leisure status and to determine appropriate restrictions for the individual traveler and a corresponding price.

The present invention permits customized restrictions to be tailored to a particular traveler. As used herein, customized restrictions are a set of restrictions established by the seller of a travel product that satisfy the individual traveler's specified



degree of flexibility. Thus, the customized restrictions are a subset of the traveler's specified degree of flexibility, containing only those restrictions that are significant to the airline. Travelers willing to be more flexible can be rewarded with a lower price. Likewise, airlines can extract more revenue from its customer base when restrictions are established in proportion to price and traveler-specified flexibilities. The present invention allows airlines to reach price-sensitive yet flexible travelers who could not previously meet generalized restrictions or prices or both. In addition, the clearly defined customized restrictions required of such price-sensitive yet flexible travelers allow the airline to more easily place such price-sensitive yet flexible travelers on a particular flight without necessarily displacing a higher paying traveler.

According to another feature of the present invention, the traveler's degree of flexibility is evaluated and a corresponding price is determined based on the traveler's stated degree of flexibility. The price may be obtained by, for example, discounting an established price, such as a published commercial fare, or applying a premium to a wholesale price. The present invention allows a traveler who is closer to a leisure status to be rewarded with proportionally lower prices. Likewise, a traveler who is closer to a business status can be required to pay higher prices, albeit with less restrictions. In one implementation, a flexibility rating can be compared to flexibility ratings for a hypothetical extreme leisure traveler (most flexible traveler) and a hypothetical extreme business traveler (least flexible traveler) to derive a proportional price. For example, the hypothetical extreme business traveler having the lowest flexibility rating may not be assigned any discount (thus, requiring full-fare). Alternatively, an appropriate price can be obtained in proportion to the number of travel products that satisfy the traveler's specified degree of flexibility.

The present invention rewards a traveler that commits to a specified degree of flexibility for a travel product with a discounted fare, subject to one or more customized restrictions. The traveler's commitment may be established, for example, by requiring the traveler to purchase a travel product that satisfies the specified degree of flexibility, or by charging a penalty if the traveler fails to purchase a travel product that satisfies the specified degree of flexibility.

In a "voucher-sale" embodiment, a voucher is issued to a traveler that establishes a right to travel, subject to customized restrictions that are based in part on the specified degree of flexibility, and optionally further subject to availability. The voucher can be exchanged for a confirmed ticket in accordance with the customized restrictions specified by the corresponding airline. In a "confirmed-sale" embodiment, confirmed or reserved tickets are provided after the traveler's specified degree of flexibility has been evaluated and a corresponding price has been established. The present invention also contemplates a "buyer-driven" embodiment and a "seller-driven" embodiment. In a buyer-driven embodiment, the traveler specifies a maximum price for which the traveler will commit to a specified degree of flexibility. In a seller-driven embodiment, the seller determines a price for which the seller agrees to sell a travel product that satisfies a traveler's specified degree of flexibility.

A more complete understanding of the present invention, as well as further features and advantages of the present invention, will be obtained by reference to the following detailed description and drawings.

#### **Brief Description of the Drawings**

FIG. 1 illustrates a network environment for processing the sale of travel products in accordance with the present invention;

FIG. 2 is a schematic block diagram of an exemplary server of FIG. 1;

FIG. 3 illustrates a sample table from the inventory database of FIG. 2;

FIGS. 4A and 4B, collectively, illustrate a sample table from the flexibility scoring database of FIG. 2;

FIG. 5 illustrates a sample table from the issued voucher database of FIG. 2;

FIGS. 6A through 6C, collectively, are a flowchart describing an exemplary flexibility evaluation process implemented by the server of FIG. 2;

FIG. 7 illustrates an exemplary graphical user interface for receiving a request to purchase a travel product that is priced based on a specified degree of flexibility; and

FIG. 8 illustrates a voucher that can be exchanged for a confirmed ticket in accordance with one embodiment of the present invention.

### **Detailed Description**

FIG. 1 illustrates a network environment 100 for interconnecting one or more user devices 130-1 through 130-N, hereinafter collectively referred to as user devices 130, a server 200, discussed below in conjunction with FIG. 2, and an optional conventional payment processor server 110. The communications network 120 may be embodied, for example, as the Internet, public switched telephone network (PSTN), dedicated data lines, cellular network, Personal Communication Systems ("PCS") network, microwave network, satellite network or a combination of the foregoing. While the invention is illustrated in an airline travel environment, the present invention could be utilized to sell any travel-related products, such as car rentals, hotel rooms, or cruises, as would be apparent to a person of ordinary skill in the art.

According to one feature of the present invention, each travel product is evaluated in terms of one or more variable components. A variable component is any portion of a travel product having a range of possible options. For example, for an airline ticket, the variable components may be the times and dates of departure or arrival, origination and destination airports, number of stops and seat position (location assignment). For each applicable variable component, the traveler specifies his or her degree of flexibility, if any, which are collectively referred to as the traveler's specified degree of flexibility. Thereafter, the traveler's tendency toward business or leisure status is evaluated. In this manner, the seller of a travel product can utilize the specified degree of flexibility to determine appropriate customized restrictions for the individual traveler and a corresponding price.

According to another feature of the present invention, the traveler's degree of flexibility is evaluated and a resulting flexibility rating is utilized to determine a corresponding price. The price may be obtained, for example, by discounting a published commercial fare, a published sale price, or a forecasted price based on, for example, historical sales information. Alternatively, the price may be obtained by applying a premium to a wholesale price. The present invention allows an airline to

more accurately address and accommodate the tendency of the traveler toward business or leisure status. In this manner, a traveler who is closer to a leisure status can be rewarded with lower prices, albeit with more restrictions. Likewise, a traveler who is closer to a business status can be required to pay higher prices, albeit with less restrictions.

In one implementation, a flexibility continuum is established between a hypothetical extreme leisure traveler (most flexible traveler) and a hypothetical extreme business traveler (least flexible traveler). The hypothetical extreme business traveler and hypothetical extreme leisure traveler are assigned a minimum and maximum flexibility rating, respectively, and a corresponding discount. For example, the hypothetical extreme business traveler may be assigned the lowest flexibility rating and not be assigned any discount (thus, requiring full-fare). A traveler's specified degree of flexibility is then evaluated, and the flexibility rating is prorated relative to the leisure-business traveler continuum to obtain an applicable price.

In a further variation, an appropriate price is obtained in proportion to the number of travel products that satisfy the traveler's specified degree of flexibility. The sellers of travel products benefit from having greater flexibility in selecting a particular travel product from among the possible travel products. Thus, in an alternate embodiment, the traveler is rewarded for his or her flexibility with a price that is discounted in proportion to the number of travel products that satisfy the traveler's specified degree of flexibility. In the illustrative airline embodiment, for example, a traveler is rewarded with a percentage discount that increases in accordance with the number of available flights that satisfy the traveler's specified degree of flexibility.

According to a further feature of the present invention, a traveler who commits to a specified degree of flexibility for a travel product is rewarded for such flexibility with a discounted fare, subject to one or more customized restrictions. The traveler's commitment may be established, for example, by requiring the traveler to purchase a travel product that satisfies the specified degree of flexibility, or by charging a penalty if the traveler fails to purchase a travel product that satisfies the specified degree of flexibility. Generally, after a traveler submits a request for a travel product with a specified degree of flexibility, for example, using the graphical user interface

700 discussed below in conjunction with FIG. 7, the seller of the travel product evaluates the traveler's flexibilities to determine a set of applicable customized restrictions. As used herein, customized restrictions are restrictions established by the airline that satisfy the individual traveler's specified degree of flexibility. Thus, the customized restrictions are a subset of the traveler's specified degree of flexibility, containing only those restrictions that are significant to the airline. For example, while a traveler's specified degree of flexibility may permit two stops on each end of a traveler's itinerary, the customized restrictions established by the airline may only require one stop.

Thus, the present invention permits customized restrictions to be tailored to a particular traveler, and thereby benefits both travelers and sellers of travel products alike. Specifically, when restrictions are commensurate with price and traveler-specified flexibilities, the travel product fits the needs of each traveler more closely. In this manner, travelers willing to be more flexible can be rewarded with a lower price. Likewise, airlines can extract more revenue from their customer bases when restrictions are established in proportion to price and traveler-specified flexibilities. The airline can reach price-sensitive yet flexible travelers who could not previously meet generalized restrictions or prices or both. Meanwhile, the clearly defined customized restrictions required of such price-sensitive yet flexible travelers allow the airline to more easily place such price-sensitive yet flexible travelers on a particular flight without necessarily displacing a higher paying traveler.

In a "voucher-sale" embodiment, a voucher is issued to a traveler that establishes a right to travel, subject to customized restrictions that are based in part on the specified degree of flexibility, and optionally further subject to availability. The voucher can be exchanged for a confirmed ticket in accordance with the customized restrictions specified by the corresponding airline. In a "confirmed-sale" embodiment, confirmed or reserved tickets are provided after the traveler's specified degree of flexibility has been evaluated and a corresponding price has been established. The present invention also contemplates a "buyer-driven" embodiment and a "seller-driven" embodiment. In a buyer-driven embodiment, the traveler specifies a maximum price for which the traveler will commit to a specified degree of flexibility. In a seller-driven

embodiment, the seller determines a price for which the seller agrees to sell a travel product that satisfies a traveler's specified degree of flexibility. Furthermore, all possible combinations of the "voucher-sale" and "confirmed-sale" embodiments and the "buyer-driven" and "seller-driven" embodiments are contemplated.

FIG. 2 is a block diagram showing the architecture of an illustrative server 200. The server 200 processes requests from travelers for travel products in accordance with a specified degree of flexibility, and determines an appropriate price and corresponding customized restrictions. The server 200 includes certain well-known hardware components, such as a data storage device 210, a processor 250, an input device 260, an output device 270 and a communications port 280. The processor 250 may be linked to each of the other listed elements, either by means of a shared data bus, or dedicated connections, as shown in FIG. 2. The communications port 280 connects the server 200 to each user device 130 and payment processor server 110, as shown in FIG. 1. The communications port 280 can include multiple communication channels for simultaneously establishing a plurality of connections.

The data storage device 210 is operable to store a program 220 that includes one or more instructions, such as those discussed further below in conjunction with FIGS. 6A through 6C, which the processor 250 is operable to retrieve, interpret and execute. For example, the data storage device 210 may store instructions representing processes to accomplish the transfer of required payments, charges and debits. The execution of such accounting transactions can be secured in a conventional manner, for example, using well-known cryptographic techniques.

As discussed further below in conjunction with FIGS. 3, 4A and 4B, and 5, the data storage device 210 includes an inventory database 300, a flexibility scoring database 400 and an issued voucher database 500. The inventory database 300 stores information on the travel products that are available for sale by the server 200. In the illustrative airline implementation, the inventory database 300 stores flight data information, such as the flight data information that is typically accessible through a computer reservation system (CRS) or airline reservation system (ARS). The flexibility scoring database 400 stores information that is used to evaluate the traveler's specified degree of flexibility and derive an appropriate price, in the illustrative implementation.

For example, the exemplary flexibility scoring database 400 indicates the degrees to which each variable component of an airline product can be customized for flexibility, and the corresponding relative importance of the component to the airline. The issued voucher database 500 stores information on each voucher that has been issued in accordance with the "voucher-sale" embodiment of the present invention.

## DATABASES

FIG. 3 illustrates an exemplary inventory database 300 that stores information on the travel products that are available for sale, such as flight data information for a number of representative flights in the illustrative airline embodiment.

The exemplary inventory database 300 maintains a plurality of records, each associated with a different flight. For each flight number listed in field 310, the seller database 300 indicates the corresponding origination and destination (O&D) cities (or airports), departure date and time, stop-over information, and arrival date and time in fields 320 through 350, respectively. In addition, the inventory database 300 records the current availability for each flight, for example, by class of service or seat location, in field 360, and the corresponding retail price and available meal options in fields 370 and 380, respectively. It is noted that the retail price recorded in field 360 may be obtained dynamically or periodically from a revenue management system (RMS) (not shown) that dynamically allocates inventory to each available fare. Thus, the discounted prices calculated in accordance with the present invention may reflect fluctuations in market forces.

FIGS. 4A and 4B, collectively, illustrate an exemplary flexibility scoring database 400 that stores information that is used to evaluate the customer's specified degree of flexibility and derive an appropriate discount. For example, the exemplary flexibility scoring database 400 shown in FIGS. 4A and 4B indicates the degrees to which each variable component of an airline product can be customized according to the flexibility of a given traveler, and the corresponding relative importance of the component to the airline. The illustrative flexibility scoring database 400 may be associated, for example, with one or more O&D pairs of a given airline. In addition, the data recorded in the illustrative flexibility scoring database 400 may only be applicable for certain periods of time. Thus, multiple versions of the illustrative

flexibility scoring database 400 may be maintained by an airline, with each version corresponding to a different O&D pair and applicable time frame.

The flexibility scoring database 400 shown in FIGS. 4A and 4B maintains a plurality of records, each associated with a different variable component of an airline product, such as a flight. For each variable component listed in field 410, the flexibility scoring database 400 includes the possible user selections and corresponding points in field 420 and a corresponding weighting factor relative to other variable components is recorded in field 430. Thus, each of the degrees of flexibility for each variable component are assigned a corresponding number of points (recorded in field 420), that can be earned by a given traveler for selecting a particular degree of flexibility. In this manner, an airline or another seller of a travel product can weight the variable components in accordance with the economic importance of each variable component to the airline (or seller). As discussed below, the points are totaled and used to calculate a price that is commensurate with the overall specified degree of flexibility. Other methods of calculating a score based on the variable components will be understood by those skilled in the art to be within the scope of the present invention.

It is again noted that the variable components and corresponding possible user selections and associated points may vary, for example, for different airlines, for different O&D pairs of the same airline or for different applicable time periods. For example, the "number of stops" may not be an applicable variable component for an O&D pair having only direct flights, such as flights between New York and Boston. Fields 440 and 450 indicate the score for each variable component for the hypothetical most flexible traveler and hypothetical least flexible traveler, respectively. In other words, the score for the hypothetical most flexible traveler for a given variable component is obtained by multiplying the selection with the highest number of corresponding points from field 420 by the weighting factor recorded in field 430. Likewise, the score for the hypothetical least flexible traveler for a given variable component is obtained by multiplying the selection with the lowest number of corresponding points from field 420 by the weighting factor recorded in field 430. Other methods of obtaining such scores will be understood by those skilled in the art to be within the scope of the present invention.



The flexibility scoring database 400 also indicates the corresponding total number of points for the hypothetical most flexible traveler and hypothetical least flexible traveler, respectively, in record 460. A percentage of the full retail price for each of the hypothetical most flexible traveler and hypothetical least flexible traveler is recorded in the corresponding entry in record 470. In other words, the hypothetical most flexible traveler will pay the lowest price, in accordance with the maximum discount set forth in record 470, and the hypothetical least flexible traveler will pay the highest price, in accordance with the minimum discount set forth in record 470. For the illustrative data set forth in the flexibility scoring database 400 of FIG. 4, the hypothetical most flexible travelers will be awarded a fifty percent (50%) discount off of the retail price. Those of ordinary skill will appreciate that other percentages could be used as desired. As discussed further below, the total flexibility score of a traveler, relative to the most and least flexible scores, is used to calculate the price that a given traveler should pay for a travel product meeting their specified degree of flexibility.

In an alternate implementation, the possible user selections for each variable component of a travel product can be assigned a corresponding monetary amount. In this manner, a discount for a traveler can be calculated by, for example, totaling all of the applicable monetary discount amounts and subtracting the total discount from the estimated commercial fare. In a further variation, the possible user selections and corresponding monetary amount for each variable component can be presented to the traveler with "buyout" provisions. For example, the traveler could buyout a date restriction for an indicated price. In theory, if the traveler bought out all the restrictions, the traveler would pay full retail price. It is noted that in a buyer-driven embodiment, both the percentage and monetary discount embodiments, each of the possible user selections and corresponding points or monetary amount for each variable component can be presented to the traveler before the traveler names their price. In yet another variation, the server 200 can utilize static rules for matching a traveler's specified degree of flexibility and price requirements, if any, with available inventory. FIG. 5 illustrates an exemplary issued voucher database 500 that stores information on each voucher that has been issued in accordance with the "voucher-sale" embodiment of the present invention. The issued voucher database 500 maintains a

plurality of records, each associated with a different voucher. For each voucher identified by a voucher identifier in field 510, the issued voucher database 500 includes the corresponding price paid in field 520 and the corresponding customized restrictions in field 530.

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## PROCESSES

As previously indicated, the server 200 executes a flexibility evaluation process 600, shown in FIGS. 6A through 6C, to process requests from travelers for discounted tickets in accordance with a specified degree of flexibility, and determine an appropriate price and corresponding customized restrictions. The flexibility evaluation process 600 evaluates the specified degree of flexibility associated with a purchase request.

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As shown in FIG. 6A, the flexibility evaluation process 600 initially receives a purchase request from a traveler during step 605 that includes the traveler's specified degree of flexibility and a payment identifier, for example, by means of a graphical user interface (GUI), such as the GUI discussed further below in conjunction with FIG. 7. As previously indicated, a buyer-driven embodiment of the present invention allows the traveler to name a price for a travel product that falls within the traveler's specified degree of flexibility. Thus, in a buyer-driven embodiment, the purchase request also includes a maximum offer price that the traveler is willing to pay for the specified degree of flexibility. In the illustrative implementation discussed in conjunction with FIG. 7, the traveler's flexibilities are specified in terms of a preferred or target selection for each variable component, together with a tolerance or window for each variable component. For example, if a traveler wishes to depart within a four hour time window between 6 a.m. and 10 a.m. on a given day, the traveler can specify 8 a.m. as a target departure time, and specify a two hour time tolerance (target time plus or minus two hours). Alternatively, the traveler can specify an acceptable window of 6 a.m. through 10 a.m., without providing a target departure time.

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It is noted that the payment identifier received during step 605 can optionally be used to establish the traveler's commitment, for example, by requiring the traveler to purchase a travel product that satisfies the specified degree of flexibility, or

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by charging a penalty if the traveler fails to purchase a travel product that satisfies the specified degree of flexibility.

The traveler is optionally pre-authorized for the estimated transaction price during step 610, for example, by verifying an account status, credit availability or account balance information. In a buyer-driven embodiment, the estimated transaction price should be the maximum offer price specified by the traveler. In a seller-driven embodiment, the estimated transaction price may be, for example, the actual retail price or an estimated price obtained from historical sales information.

The inventory database 300 is queried during step 615 to determine if there are any possible retail products, such as specific flights, that fall within the traveler's specified degree of flexibility. If it is determined during step 615 that there are no retail products that fall within the traveler's specified degree of flexibility, then a rejection message is transmitted to the traveler during step 620. If, however, it is determined during step 615 that there are retail products that fall within the traveler's specified degree of flexibility, then the magnitude of a discount for which the traveler may be eligible is determined during step 625.

A total flexibility score is calculated during step 625 using the user-specified selection and corresponding point assignments from the flexibility scoring database 400 (FIG. 4) for each variable component of the travel product. As discussed further below in conjunction with FIG. 7, a percentage discount for the current traveler is derived using the total flexibility score, prorated relative to the leisure-business traveler continuum discussed above.

Thereafter, the qualifying products that meet the traveler's specified degree of flexibility and offer price (if specified) are identified during step 630 from among the otherwise possible retail products identified during step 615. In a buyer-driven embodiment, the products meeting the traveler's offer price are identified by multiplying the retail prices of the possible retail products, as obtained from the appropriate entry of the inventory database 300 (FIG. 3) by the calculated percentage discount for the current traveler obtained during step 625 and comparing the result to the offer price.

The customized restrictions applicable to the individual traveler are identified by the airline (or another seller of travel products) during step 635, for example, by identifying restrictions that are common to the qualifying retail products meeting the traveler's offer price (identified during step 630). As previously indicated, the customized restrictions are a subset of the traveler's specified degree of flexibility. The customized restrictions may be, for example, (i) a list of the flights that are qualifying retail products meeting the traveler's specified degree of flexibility and offer price (if any); or (ii) a subset of the flights that are qualifying retail products meeting the traveler's specified degree of flexibility and offer price (if any) that additionally satisfy one or more additional customized restrictions, such as at least one layover or a Saturday night stay. In one variation, the customized restrictions may be further filtered to ensure that the traveler does not receive the requested target or preferred travel product at a discount. For example, one or more flights from among the list of qualifying flights may be selected randomly, to maximize airline revenue, for example, through load balancing, or such that the most dissimilar travel products within the specified degree of flexibility are selected.

The customized restrictions applicable to the individual traveler are presented to the traveler during step 640 (FIG. 6B). Thereafter, a test is performed during step 645 to determine if the present transaction is a voucher-sale or a confirmed-sale. In other words, the test performed during step 645 determines whether the traveler is seeking a voucher, that can be exchanged for a confirmed ticket in accordance with the customized restrictions specified by the corresponding airline, or a confirmed or reserved ticket. In the "voucher-sale" embodiment, vouchers are issued to a traveler that establish a right to travel, subject to customized restrictions that are based in part on the specified degree of flexibility, and optionally further subject to availability. It is noted that a given airline can implement a pure "voucher-sale" embodiment, a pure "confirmed-sale" embodiment, or a combination of both embodiments. The test performed during step 645 is for illustration only and contemplates a combination of both the "voucher-sale" and "confirmed-sale" embodiments.

If it is determined during step 645 that the present transaction is a confirmed-sale, then a further test is performed during step 650 to determine if the traveler accepts any identified qualifying products. If it is determined during step 650 that the traveler has rejected all of the identified qualifying products, then a penalty is levied against the traveler, for example, during step 652 using the received payment identifier before program control terminates.

If, however, it is determined during step 650 that the traveler has accepted one or more of the identified qualifying products, then the selected travel product is identified during step 655. The payment is processed during step 660 at the selling price. For example, for credit or debit card transactions the payment processor server 110 can process the payment transaction in a known manner. Likewise, electronic currency payments can be processed in a known manner. It is again noted that in a buyer-driven embodiment the selling price will be the maximum offer price specified by the traveler, and in a seller-driven embodiment the selling price will be a price specified by the airline, such as a price based on the specified degree of flexibility. The confirmed ticket (or reservation) is issued using a computer reservation system (CRS) or an airline reservation system (ARS) during step 665, before program control terminates.

If, however, it was determined during step 645 that the present transaction is a voucher-sale, then a further test is performed during step 670 (FIG. 6C) to determine if the traveler accepts the customized restrictions. If it is determined during step 670 that the traveler has rejected the customized restrictions, then a penalty is levied against the traveler using the received payment identifier during step 675, before program control terminates. The penalty amount may be a fixed amount stored in memory, or a predefined percentage of the estimated transaction price determined during step 610.

If, however, it is determined during step 670 that the traveler has accepted the customized restrictions, then payment is processed during step 680 at the selling price, in the manner described above. It is again noted that in a buyer-driven embodiment the selling price will be the maximum offer price specified by the traveler, and in a seller-driven embodiment the selling price will be a price specified by the

airline, such as a price based on the specified degree of flexibility. A voucher, such as the voucher discussed below in conjunction with FIG. 8, is generated during step 685, for example, by creating an electronic representation of the voucher 800 or by printing a paper version of the voucher 800, and a voucher identifier and related information is stored in the issued voucher database 500. The voucher containing the appropriate customized restrictions for the traveler is provided (electronically or by means of a conventional mail delivery system) to the user device 130, before program control terminates.

FIG. 7 illustrates an exemplary graphical user interface (GUI) 700 in accordance with an embodiment of the present invention for receiving a request to purchase a discounted travel product according to a specified degree of flexibility. The graphical user interface (GUI) 700 is an example of one or more Web pages that may be utilized by a traveler to enter his or her purchase request, including a specified degree of flexibility and an offer price (in a buyer-driven implementation). It is noted that fields of the graphical user interface (GUI) 700 that are to be populated with traveler-specified data, such as fields 711-718, may be configured to accept any data from the traveler, or may provide suggested data, for example, in the form of pull-down menus or check-off boxes.

The illustrative data set forth in the graphical user interface (GUI) 700 of FIG. 7 entitles the corresponding traveler to a discount of 25% off of the retail price, using the exemplary point assignments set forth in the flexibility scoring database 400 of FIG. 4. In this example, the scores for each selection from field 420, when multiplied by the corresponding weighting factors from field 430, yield a total score of 134, as follows:

Variable Component Selection	Point Assignment	Score (Point Assignment*Weighting Factor)
2 origination airports	1	3
1 destination airport	0	0
within 1 day of departure date	5	50
within 12 hours of departure time	4	36
no tolerance on arrival date	0	0
within 2 hours of arrival time	2	18

one stop	2	16
any seat	2	8
any meal	1	1
TOTAL FLEXIBILITY SCORE:		132

The total flexibility score, when prorated on the leisure-business traveler continuum, yields a discount of 25.48262% off of the retail price, as follows:

$$259/.5 = 132/X$$

$$X = .2548262$$

Thus, assuming that qualifying products in fact exist, the traveler will be allowed to purchase a voucher for 25% off the retail price. Thus, in a buyer-driven embodiment, the traveler's offer will be accepted if the offer price is greater than or equal to the retail price multiplied by .75. In a seller-driven embodiment, the traveler will be presented with an opportunity to purchase a travel product that meets the specified degree of flexibility for 25% off of the retail price.

FIG. 8 illustrates a voucher 800 that can be exchanged by a traveler for a confirmed ticket in accordance with one embodiment of the present invention. The voucher 800 represents a redeemable right to purchase the corresponding travel product, subject to the indicated customized restrictions 820, including availability. The illustrative data on the voucher 800 of FIG. 8 corresponds to a voucher issued to the traveler associated with the data set forth in the exemplary graphical user interface (GUI) 700 of FIG. 7.

It is to be understood that the embodiments and variations shown and described herein are merely illustrative of the principles of this invention and that various modifications may be implemented by those skilled in the art without departing from the scope and spirit of the invention. For example, while the invention has been illustrated in an airline travel environment, the present invention could be utilized to sell any travel products, such as car rentals, hotel rooms, or cruises, as would be apparent to a person of ordinary skill in the art. In addition, while the present invention has been illustrated for use by a single airline, the present invention could be implemented by a plurality of airlines or a third party on behalf of a number of airlines.

We claim:

- 1 1. A method for pricing a travel product, comprising the steps of:  
2 obtaining a flexibility range from said customer;  
3 identifying at least one travel product that satisfies said flexibility range;  
4 and  
5 determining a price for said identified travel product based on said  
6 flexibility range.
- 1 2. The method of claim 1, wherein said price is determined by discounting  
2 an established price.
- 1 3. The method of claim 1, wherein said price is determined by scoring said  
2 flexibility range to obtain a score and using said score to determine a percentage  
3 discount off of an established price.
- 1 4. The method of claim 1, wherein said price is determined by scoring said  
2 flexibility range to obtain a score and using said score to determine a monetary discount  
3 off of an established price.
- 1 5. The method of claim 1, wherein said price is proportional to said  
2 flexibility range.
- 1 6. The method of claim 1, wherein said flexibility range is specified in  
2 terms of a preferred travel product and a set of tolerances for at least one variable  
3 component of said travel product.
- 1 7. The method of claim 1, wherein said flexibility range is specified in  
2 terms of a minimum and maximum value for at least one variable component of said  
3 travel product.



1 8. The method of claim 1, wherein said flexibility range includes  
2 acceptable times and dates.

1 9. The method of claim 1, wherein said flexibility range includes a desired  
2 level of service.

1 10. The method of claim 1, wherein said flexibility range includes an  
2 acceptable location assignment for a travel product.

1 11. The method of claim 1, wherein said price is determined by multiplying  
2 a wholesale price by a predefined value.

1 12. The method of claim 1, wherein said identified travel product has a price  
2 not greater than a maximum price identified by said customer.

1 13. The method of claim 1, wherein said identifying step identifies a travel  
2 product other than a preferred travel product identified by said customer.

1 14. The method of claim 1, wherein said identified travel product is selected  
2 randomly from a set of travel products satisfying said flexibility range.

1 15. The method of claim 1, wherein said identifying step further comprises  
2 the step of selecting said identified travel product based on revenue management  
3 information.

1 16. The method of claim 1, further comprising the step of providing a  
2 voucher to said customer to enable the purchase of one of said identified travel  
3 products.

1 17. The method of claim 16, further comprising the step of recording  
2 identifying information about said voucher.

1 18. The method of claim 1, further comprising the step of charging a penalty  
2 to said customer if said customer fails to purchase said identified travel product.

1 19. A method for pricing a travel product, comprising the steps of:  
2 obtaining a flexibility range from said customer;  
3 identifying at least one travel product that satisfies said flexibility range;  
4 and  
5 determining a price for said at least one identified travel product based  
6 on a number of said identified travel products satisfying said flexibility range.

1 20. The method of claim 19, wherein said price is determined by  
2 determining a percentage discount off of an established price.

1 21. The method of claim 19, wherein said price is determined by  
2 determining a monetary discount off of an established price.

1 22. The method of claim 19, wherein said price is proportional to said  
2 flexibility range.

1 23. The method of claim 19, wherein said identified travel product has a  
2 price not greater than a maximum price identified by said customer.

1 24. The method of claim 19, wherein said identifying step identifies a travel  
2 product other than a preferred travel product identified by said customer.

1 25. The method of claim 19, wherein said identified travel product is  
2 selected randomly from a set of travel products satisfying said flexibility range.

1 26. The method of claim 19, wherein said identifying step further comprises  
2 the step of selecting said identified travel product based on revenue management  
3 information.

1 27. The method of claim 19, further comprising the step of charging a  
2 penalty to said customer if said customer fails to purchase said identified travel product.

1 28. A method for determining customized restrictions for a travel product,  
2 comprising the steps of:

3 obtaining a flexibility range from said customer;

4 determining at least one seller restriction for at least one travel product  
5 that satisfies said flexibility range; and

6 providing said seller restrictions and a price to said buyer for approval,  
7 the price being based on said flexibility range.

1 29. The method of claim 28, wherein said price is determined by discounting  
2 an established price.

1 30. The method of claim 28, wherein said price is determined by scoring  
2 said flexibility range and using said score to determine a percentage discount off of an  
3 established price.

1 31. The method of claim 28, wherein said price is determined by scoring  
2 said flexibility range and using said score to determine a monetary discount off of an  
3 established price.

1 32. The method of claim 28, wherein said price is proportional to said  
2 flexibility range.

1 33. The method of claim 28, wherein said travel product has a price not  
2 greater than a maximum price identified by said customer.

1 34. The method of claim 28, further comprising the step of charging a  
2 penalty to said customer if said customer fails to purchase said identified travel product.

1 35. A method for determining customized restrictions for a travel product,  
2 comprising the steps of:  
3 obtaining a flexibility range from said customer;  
4 determining at least one seller restriction for at least one travel product  
5 that satisfies said flexibility range; and  
6 establishing a commitment of said customer to purchase said travel  
7 product before determining a price for said travel product.

1 36. The method of claim 35, wherein said commitment is established by  
2 requiring said customer to purchase the travel product that satisfies said flexibility  
3 range.

1 37. The method of claim 35, wherein said customer is required to purchase  
2 said travel product that satisfies said flexibility range using a payment identifier from  
3 said customer.

1 38. The method of claim 35, wherein said commitment is established by  
2 charging a penalty to an account associated with a payment identifier if said customer  
3 fails to purchase said travel product that satisfies said flexibility range.

1 39. The method of claim 35, further comprising the step of determining a  
2 price for said travel product by discounting an established price.

1 40. The method of claim 35, further comprising the step of determining a  
2 price for said travel product by scoring said flexibility range and using said score to  
3 determine a percentage discount off of an established price.

1 41. The method of claim 35, further comprising the step of determining a  
2 price for said travel product by scoring said flexibility range and using said score to  
3 determine a monetary discount off of an established price.

1 42. The method of claim 35, further comprising the step of determining a  
2 price for said travel product that is substantially proportional to said flexibility range.

1 43. The method of claim 35, further comprising the step of charging a  
2 penalty to said customer if said customer fails to purchase said identified travel product.

1 44. A system for pricing a travel product, comprising:  
2 a memory for storing computer-readable code; and  
3 a processor operatively coupled to said memory, said processor  
4 configured to:  
5 obtain a flexibility range from said customer;  
6 identify at least one travel product that satisfies said flexibility range;  
7 and  
8 determine a price for said identified travel product based on said  
9 flexibility range.

1 45. A system for pricing a travel product, comprising:  
2 means for obtaining a flexibility range from said customer for said travel  
3 product;  
4 means for identifying at least one travel product that satisfies said  
5 flexibility range; and  
6 means for determining a price for said identified travel product based on  
7 said flexibility range.

1 46. An article of manufacture for processing the sale of a product  
2 comprising:  
3 a computer readable medium having computer readable code means  
4 embodied thereon, said computer readable program code means comprising:  
5 a step to obtain a flexibility range from said customer;  
6 a step to identify at least one travel product that satisfies said flexibility  
7 range; and

8 a step to determine a price for said identified travel product based on  
9 said flexibility range.

1 47. A system for pricing a travel product, comprising:  
2 a memory for storing computer-readable code; and  
3 a processor operatively coupled to said memory, said processor  
4 configured to:  
5 obtain a flexibility range from said customer;  
6 identify at least one travel product that satisfies said flexibility range;  
7 and  
8 determine a price for said at least one identified travel product based on  
9 a number of said identified travel products satisfying said flexibility range.

1 48. A system for pricing a travel product, comprising:  
2 means for obtaining a flexibility range from said customer;  
3 means for identifying at least one travel product that satisfies said  
4 flexibility range; and  
5 means for determining a price for said at least one identified travel  
6 product based on a number of said identified travel products satisfying said flexibility  
7 range.

1 49. An article of manufacture for processing the sale of a product  
2 comprising:  
3 a computer readable medium having computer readable code means  
4 embodied thereon, said computer readable program code means comprising:  
5 a step to obtain a flexibility range from said customer;  
6 a step to identify at least one travel product that satisfies said flexibility  
7 range; and  
8 a step to determine a price for said at least one identified travel product  
9 based on a number of said identified travel products satisfying said flexibility range.

1 50. A system for determining customized restrictions for a travel product,  
2 comprising:  
3 a memory for storing computer-readable code; and  
4 a processor operatively coupled to said memory, said processor  
5 configured to:  
6 obtain a flexibility range from said customer;  
7 determine at least one seller restriction for at least one travel product that  
8 satisfies said flexibility range; and  
9 provide said seller restrictions to said buyer for approval with a price  
10 based on said flexibility range.

1 51. A system for determining customized restrictions for a travel product,  
2 comprising:  
3 means for obtaining a flexibility range from said customer;  
4 means for determining at least one seller restriction for at least one travel  
5 product that satisfies said flexibility range; and  
6 means for providing said seller restrictions to said buyer for approval  
7 with a price based on said flexibility range.

1 52. An article of manufacture for processing the sale of a product  
2 comprising:  
3 a computer readable medium having computer readable code means  
4 embodied thereon, said computer readable program code means comprising:  
5 a step to obtain a flexibility range from said customer for said travel  
6 product;  
7 a step to determine at least one seller restriction for at least one travel  
8 product that satisfies said flexibility range; and  
9 a step to provide said seller restrictions to said buyer for approval with a  
10 price based on said flexibility range.

1 53. A system for determining customized restrictions for a travel product,  
 2 comprising:  
 3 a memory for storing computer-readable code; and  
 4 a processor operatively coupled to said memory, said processor  
 5 configured to:  
 6 obtain a flexibility range from said customer;  
 7 determine at least one seller restriction for at least one travel product that  
 8 satisfies said flexibility range; and  
 9 establish a commitment of said customer to purchase said travel product  
 10 before determining a price for said travel product.

1 54. A system for determining customized restrictions for a travel product,  
 2 comprising:  
 3 means for obtaining a flexibility range from said;  
 4 means for determining at least one seller restriction for at least one travel  
 5 product that satisfies said flexibility range; and  
 6 means for establishing a commitment of said customer to purchase said  
 7 travel product before determining a price for said travel product.

1 55. An article of manufacture for processing the sale of a product  
 2 comprising:  
 3 a computer readable medium having computer readable code means  
 4 embodied thereon, said computer readable program code means comprising:  
 5 a step to obtain a flexibility range from said customer;  
 6 a step to determine at least one seller restriction for at least one travel  
 7 product that satisfies said flexibility range; and  
 8 a step to establish a commitment of said customer to purchase said travel  
 9 product before determining a price for said travel product.



## ABSTRACT

A method and apparatus are disclosed for processing requests from a traveler for a travel product priced in accordance with a specified degree of flexibility.

5 A traveler's specified degree of flexibility is evaluated to determine an appropriate price and corresponding customized restrictions. Each travel product is evaluated in terms of one or more variable components, each having a range of possible options. For each applicable variable component, the traveler specifies his or her degree of flexibility, if any. The stated degree of flexibility is used to evaluate the traveler's tendency toward a  
10 business or leisure status and to determine appropriate restrictions for the individual traveler and a corresponding price. The traveler's degree of flexibility is evaluated and the resulting flexibility rating is utilized to determine a price, such as a discount off of an established price, such as a published commercial fare for a travel product. The flexibility rating can be compared to flexibility ratings for a hypothetical extreme  
15 leisure traveler (most flexible traveler) and a hypothetical extreme business traveler (least flexible traveler) to derive a corresponding price. The present invention rewards a traveler that commits to a specified degree of flexibility for a travel product with a discounted fare, subject to one or more customized restrictions. In a "voucher-sale" embodiment, a voucher is issued to a traveler that establishes a right to travel, subject to  
20 customized restrictions that are based in part on the specified degree of flexibility, and optionally further subject to availability. In a "confirmed-sale" embodiment, confirmed or reserved tickets are provided after the traveler's specified degree of flexibility has been evaluated and a corresponding price has been established. In a buyer-driven embodiment, the traveler specifies a maximum price for which the traveler will commit  
25 to a specified degree of flexibility.

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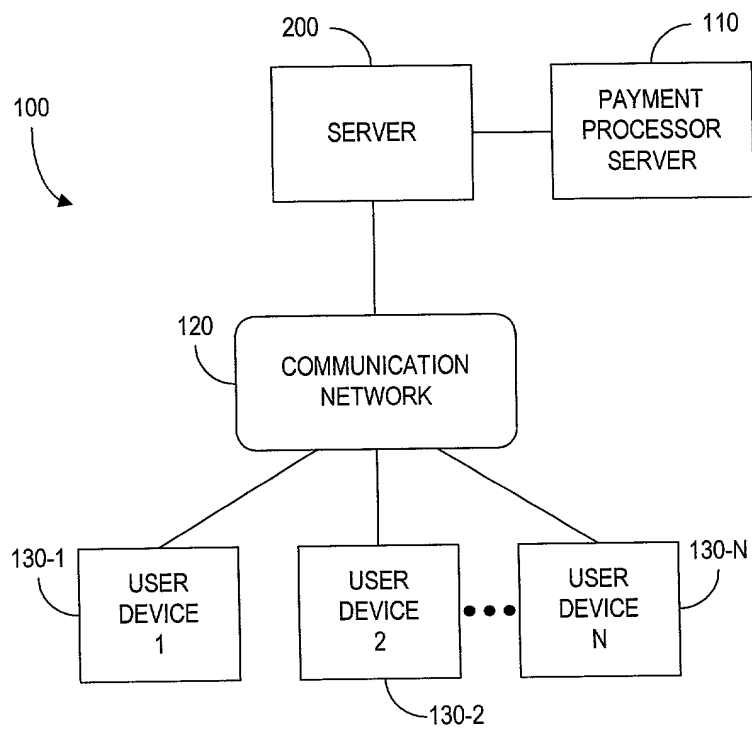


FIG. 1

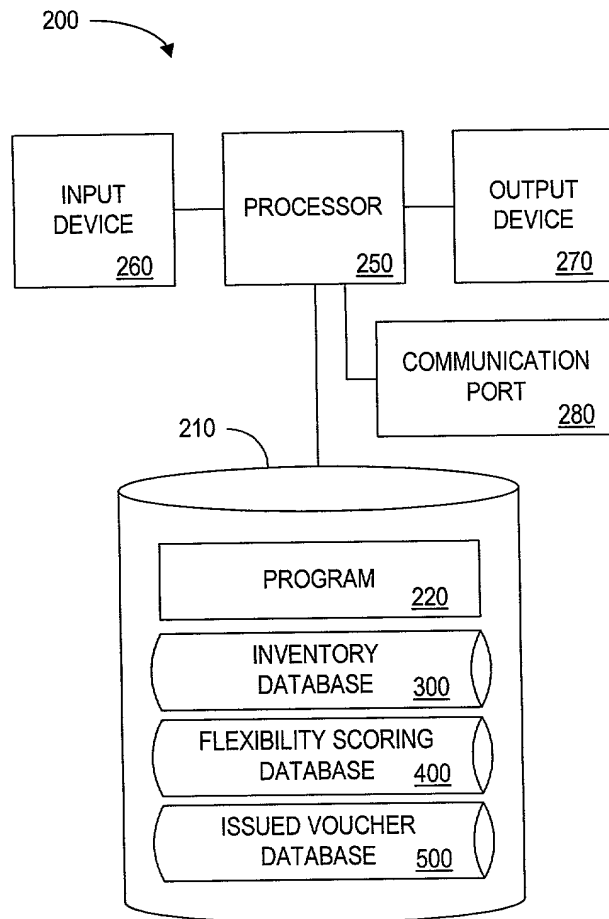
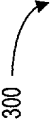


FIG. 2

300



FLIGHT NUMBER 310	O&D CITIES, AIRPORTS 320	DEPARTURE DATE/TIME 330	STOP-OVER INFORMATION 340	ARRIVAL DATE/TIME 350	AVAILABILITY 360		RETAIL PRICE 370	MEAL OPTIONS 380
123	NY-JFK TO LA-LAX	9/20/1999 10:00 AM	CHICAGO- OHARE; STAY ON PLANE; 1 HOUR LAY OVER	9/20/1999 6:00 PM	FIRST CLASS	10 SEATS	\$500	CHICKEN OR VEGETARIAN
					BUSINESS CLASS	12 SEATS	\$350	N/A
					COACH	16 SEATS	\$250	N/A
234	NY-JFK TO LA-LGB	9/19/1999 10:30AM	N/A	9/19/1999 5:30 PM	FIRST CLASS	5 SEATS	\$600	FISH OR VEGETARIAN
					BUSINESS CLASS	10 SEATS	\$400	N/A
					COACH	13 SEATS	\$290	N/A
345	NY-LGA TO LA-LAX	9/18/1999 9:00 PM	N/A	9/19/1999 4:00 AM	FIRST CLASS	10 SEATS	\$300	NO MEAL
					BUSINESS CLASS	15 SEATS	\$250	NO MEAL
					COACH	19 SEATS	\$190	NO MEAL

FIG. 3

400  
↘

COMPONENT 410	POSSIBLE USER SELECTIONS AND CORRESPONDING POINTS 420
DEPARTURE DATE	+/- 3 DAYS OF TARGET DATE = 7 PTS +/- 2 DAYS OF TARGET DATE = 6 PTS +/- 1 DAY OF TARGET DATE = 5 PTS +/- 0 DAYS OF TARGET DATE = 0 PTS
DEPARTURE TIME	+/- 12 HOURS OF TARGET TIME = 4 PTS +/- 6 HOURS OF TARGET TIME = 3 PTS +/- 2 HOURS OF TARGET TIME = 2 PTS +/- 0 HOURS OF TARGET TIME = 0 PTS
ORIGINATION AIRPORTS	2 AIRPORTS = 1 PT 1 AIRPORT = 0 PTS
ARRIVAL DATE	+/- 3 DAYS OF TARGET DATE = 7 PTS +/- 2 DAYS OF TARGET DATE = 6 PTS +/- 1 DAY OF TARGET DATE = 5 PTS +/- 0 DAYS OF TARGET DATE = 0 PTS
ARRIVAL TIME	+/- 12 HOURS OF TARGET TIME = 4 PTS +/- 6 HOURS OF TARGET TIME = 3 PTS +/- 2 HOURS OF TARGET TIME = 2 PTS +/- 0 HOURS OF TARGET TIME = 0 PTS
DESTINATION AIRPORTS	2 AIRPORTS = 1 PT 1 AIRPORT = 0 PTS
NUMBER OF STOPS	2 STOPS = 9 PTS 1 STOPS = 2 POINTS 0 STOPS = 0 PTS
SEAT POSITION	ANY SEAT = 2 PTS WINDOW ONLY = 0 PTS AISLE ONLY = 0 PTS
MEAL	ANY MEAL = 1 PT VEGETARIAN ONLY = 0 PTS

FIG. 4A

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	TOTALS		
	WEIGHTING FACTOR (1-10) <u>430</u>	MOST FLEXIBLE TRAVELER'S SCORE <u>440</u>	LEAST FLEXIBLE TRAVELER'S SCORE <u>450</u>
	10	70	0
	9	36	0
	3	3	0
	10	70	0
	9	36	0
	3	3	0
	8	32	0
	4	8	0
	1	1	0
460	TOTAL FLEXIBILITY SCORE	259	0
470	CORRESPONDING % OF FULL RETAIL PRICE	50%	100%

FIG. 4B

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500

VOUCHER IDENTIFIER 510	PRICE PAID 520	CUSTOMIZED RESTRICTIONS 530
009827A198B	\$185.00	-1 COACH TICKET -FLIGHT 123 -9/20/99 -JFK-LAX -NO SPECIFIC SEAT -NO SPECIFIC MEAL -SUBJECT TO AVAILABILITY -NO REFUNDS -MUST REDEEM PRIOR TO 21 DAYS BEFORE FLIGHT
		-1 BUSINESS CLASS TICKET -FLIGHT 345 -9/18/99 -LGA-LAX -NO SPECIFIC SEAT -NO SPECIFIC MEAL -SUBJECT TO AVAILABILITY -NO REFUNDS -MUST REDEEM PRIOR TO 21 DAYS BEFORE FLIGHT

FIG. 5

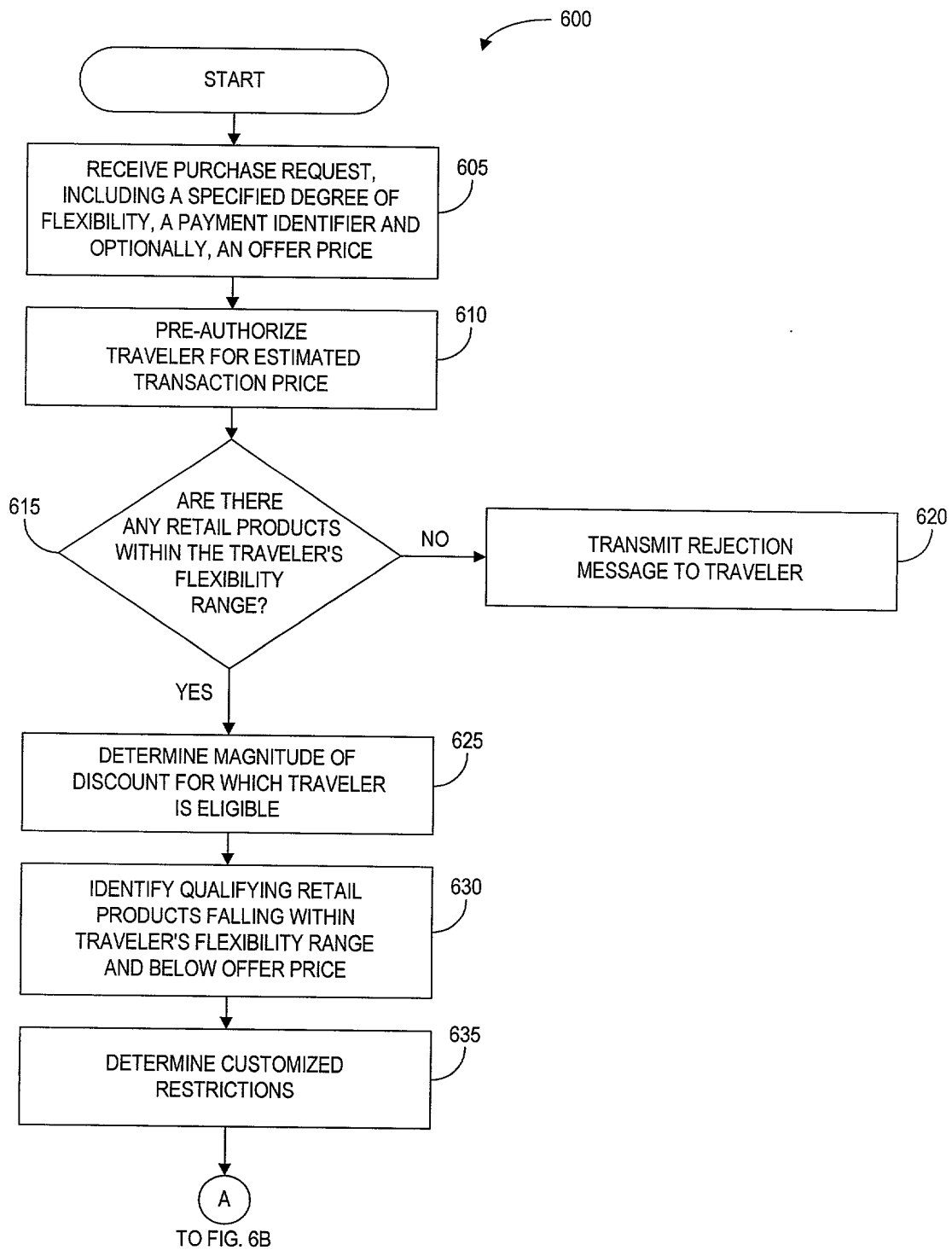


FIG. 6A



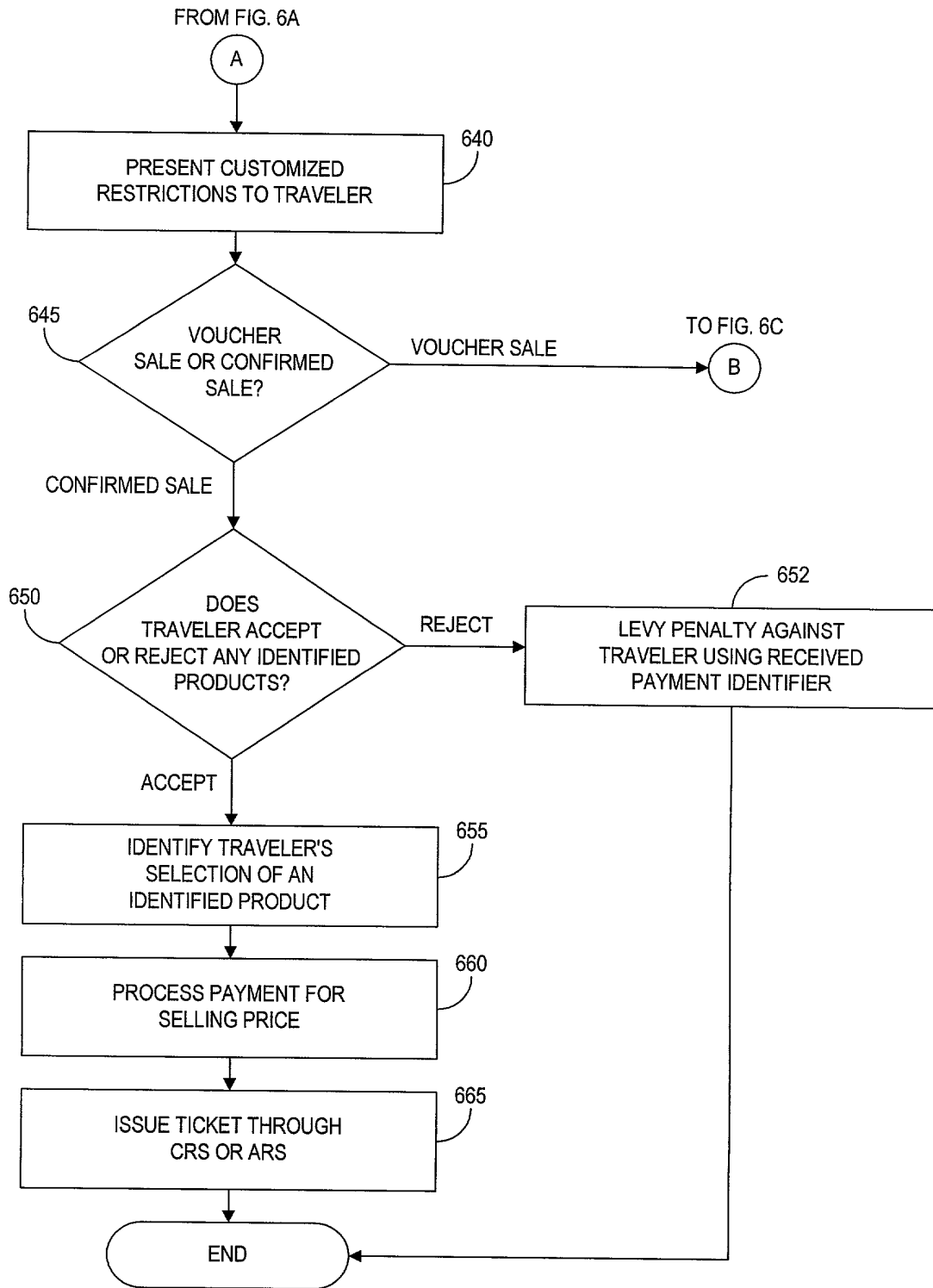


FIG. 6B

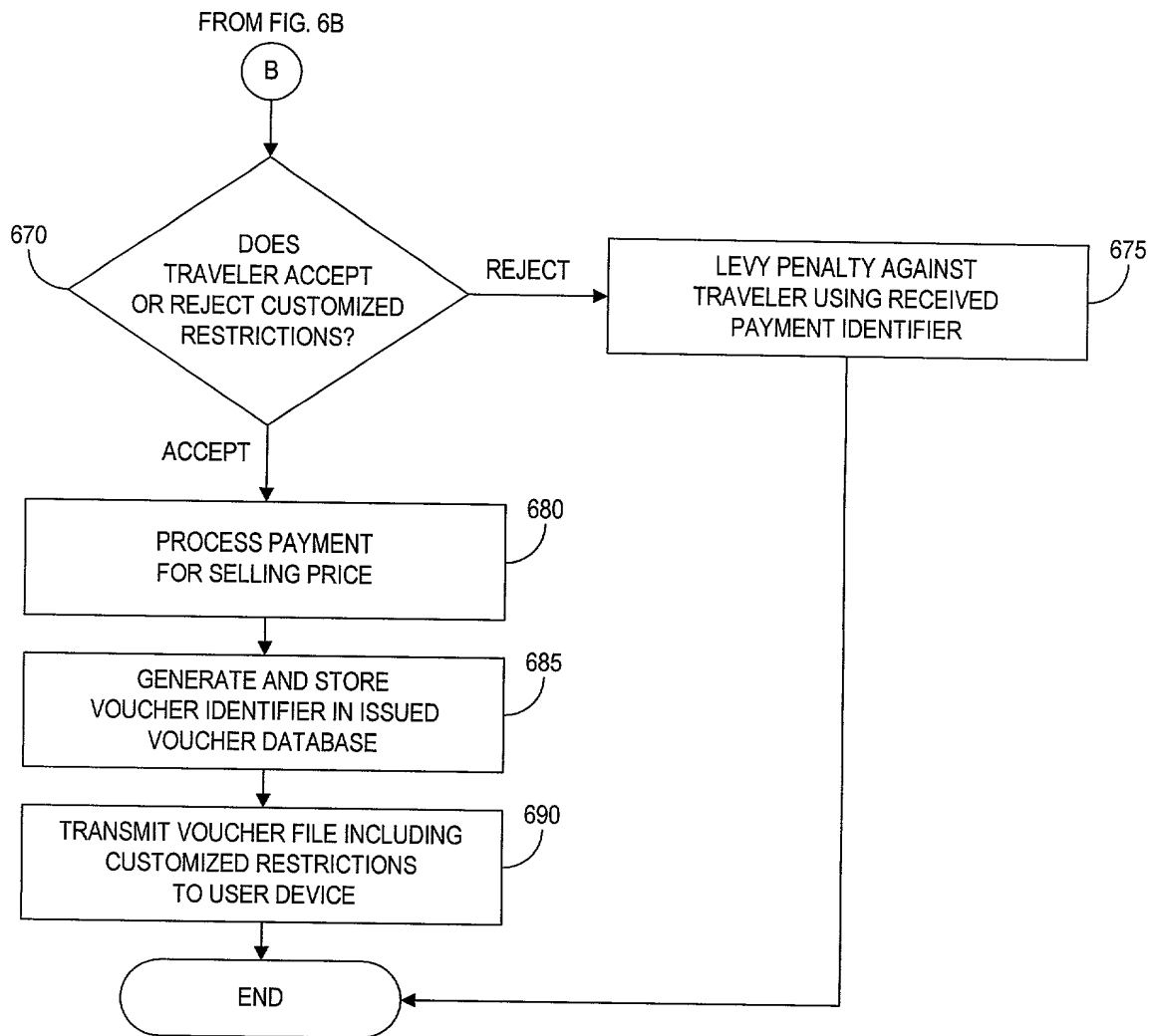


FIG. 6C

700

PLEASE PROVIDE US WITH YOUR IDEAL TRAVEL ARRANGEMENTS  
AND YOUR FLEXIBILITY

WHERE DO YOU WANT TO LEAVE FROM?

ORIGINATION CITY:

NEW YORK CITY

ORIGINATION AIRPORT:

JFK

WHERE DO YOU WANT TO ARRIVE?

DESTINATION CITY:

LOS ANGELES

DESTINATION AIRPORT:

LAX

WHERE ARE YOU WILLING TO LEAVE FROM?

ORIGINATION AIRPORTS:

JFK

☒

LGA

☒

WHERE ARE YOU WILLING TO LEAVE FROM?

DESTINATION AIRPORTS:

LAX

☒

LGB

☐

WHEN DO YOU WANT TO LEAVE AND ARRIVE?

DEPARTURE DATE: 09/19/1999

DEPARTURE TIME:

10:00 AM

ARRIVAL DATE: 09/19/1999

ARRIVAL TIME:

05:00 PM

WHEN ARE YOU WILLING TO LEAVE AND ARRIVE?

<input type="checkbox"/>	+/- 3 DAYS OF TARGET DEPARTURE DATE	+/- 12 HOURS OF TARGET DEPARTURE TIME	<input checked="" type="checkbox"/>
<input type="checkbox"/>	+/- 2 DAYS OF TARGET DEPARTURE DATE	+/- 6 HOURS OF TARGET DEPARTURE TIME	<input type="checkbox"/>
<input checked="" type="checkbox"/>	+/- 1 DAY OF TARGET DEPARTURE DATE	+/- 2 HOURS OF TARGET DEPARTURE TIME	<input type="checkbox"/>
<input type="checkbox"/>	+/- 0 DAYS OF TARGET DEPARTURE DATE	+/- 0 HOURS OF TARGET DEPARTURE TIME	<input type="checkbox"/>
<input type="checkbox"/>	+/- 3 DAYS OF TARGET ARRIVAL DATE	+/- 12 HOURS OF TARGET ARRIVAL TIME	<input type="checkbox"/>
<input type="checkbox"/>	+/- 2 DAYS OF TARGET ARRIVAL DATE	+/- 6 HOURS OF TARGET ARRIVAL TIME	<input type="checkbox"/>
<input type="checkbox"/>	+/- 1 DAY OF TARGET ARRIVAL DATE	+/- 2 HOURS OF TARGET ARRIVAL TIME	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	+/- 0 DAYS OF TARGET ARRIVAL DATE	+/- 0 HOURS OF TARGET ARRIVAL TIME	<input type="checkbox"/>

HOW MANY STOPS ARE YOU WILLING TO MAKE?

☐

2 STOPS

☒

1 STOP

☐

0 STOPS

DO YOU HAVE A SEATING PREFERENCE?

☒

ANY SEAT

☐

WINDOW ONLY

☐

AISLE SEAT ONLY

DO YOU HAVE A MEAL PREFERENCE?

☒

ANY MEAL

☐

VEGETARIAN ONLY

PLEASE NAME THE PRICE YOU WANT TO PAY FOR  
A VOUCHER THAT MEETS YOUR REQUIREMENTS:

\$

185.00

PLEASE ENTER YOUR CREDIT CARD NUMBER AND  
EXPIRATION DATE:

#

1111-1111-1111-1111

EXP.

01/01/2000

FIG. 7

55220"335550

800

810

**BRAND X AIRLINES**

**AIR TRAVEL VOUCHER**

PRICE PAID: \$185.00

820 RESTRICTIONS:

-ONLY REDEEMABLE FOR BOOKING OF:

-1 COACH TICKET		-1 BUSINESS CLASS TICKET
-FLIGHT 123		-FLIGHT 345
-9/20/99	OR	-9/18/99
-JFK-LAX		-LGA-LAX
-NO SPECIFIC SEAT		-NO SPECIFIC SEAT
-NO SPECIFIC MEAL		-NO SPECIFIC MEAL

EITHER FLIGHT:

SUBJECT TO AVAILABILITY. NO REFUNDS.  
VOUCHER MUST BE REDEEMED FOR BOOKED  
TICKET PRIOR TO 21 DAYS BEFORE FLIGHT.

VOUCHER IDENTIFIER: 009827A198B

830

FIG. 8

Docket No.  
WD2-99-055

# Declaration and Power of Attorney For Patent Application

## English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

### SYSTEM AND METHOD FOR PRICING A TRAVEL PRODUCT BASED ON A TRAVELER'S SPECIFIED DEGREE OF FLEXIBILITY

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as United States Application No. or PCT International Application Number \_\_\_\_\_ and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/>
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/>
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

\_\_\_\_\_  
(Status)  
(patented, pending, abandoned)

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

\_\_\_\_\_  
(Status)  
(patented, pending, abandoned)

\_\_\_\_\_  
(Application Serial No.)

\_\_\_\_\_  
(Filing Date)

\_\_\_\_\_  
(Status)  
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*


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Third inventor's signature

Date

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Fifth inventor's signature

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7/22/99

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Full name of sixth inventor, if any

Sixth inventor's signature

Date

Residence

Citizenship

Post Office Address